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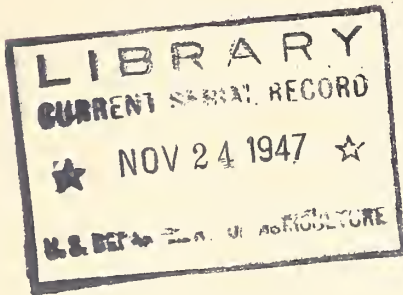
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R E P O R T

of the

THIRD NORTHEASTERN CORN IMPROVEMENT CONFERENCE

New Brunswick, New Jersey
February 18-19, 1947



Reported by
Merle T. Jenkins, Secretary

✓ ✓ Division of Cereal Crops and Diseases
✓ Bureau of Plant Industry, Soils, and Agricultural Engineering
Plant Industry Station, Beltsville, Md.
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INV. '60

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REPORT OF THE THIRD NORTHEASTERN CORN IMPROVEMENT CONFERENCE

New Brunswick, New Jersey
February 18-19, 1947

Reported by Merle T. Jenkins ^{1/}Secretary

MORNING SESSION, TUESDAY, FEBRUARY 18

The meetings on Tuesday were held at the Roger Smith Hotel. The morning session was called to order shortly after 9:00 o'clock but several members did not arrive until later in the morning. A list of those in attendance is given in the Roster of Attendance on page 13.

The entire morning session was devoted to a discussion of the 1948 uniform tests and to the selection of the parent inbred lines to be entered in these tests. After consideration of the inbred lines that seemed to warrant testing in 1948, three groups of lines finally were selected for testing. These are listed below:

<u>Wis. Hybrid 412</u> <u>Maturity 2/</u>	<u>Ohio K24</u> <u>Maturity 2/</u>	<u>U. S. 13</u> <u>Maturity 2/</u>
W9	Oh51A	WF9
Ia. 153	WF9	38-11
Oh28	Oh33	Hy
Wis. M13	Oh40B	L317
Pa Sp11	B8 (Formerly	K155
NY3	Ia. Y63)	Oh07A
Pa C1 28	W22	Pa L29
MS19	Pa L109	C102
C105	W26	C103
A158	W20	Oh6127, Oh6130 or
	Wis. R3	Oh6139

LUNCH

AFTERNOON SESSION, TUESDAY, FEBRUARY 18

Chairman Huber called the afternoon session to order at 1:00 p.m.

It was agreed that inbred lines which appear sufficiently promising to warrant consideration for the uniform tests of single crosses, should be grown at several stations for observation prior to their actual entry into the tests. This should permit a better classification of them on maturity and should show up any outstanding peculiarities they may possess.

^{1/} Principal Agronomist, Division of Cereal Crops and Diseases, Plant Industry Station, Beltsville, Maryland.

^{2/} See page 5 for arrangements regarding seed production.

The Research and Marketing Act of 1946 (Flannagan-Hope Act) and the progress made by the Southern Corn Improvement Conference in organizing a regional project on Corn Improvement in the South under this Act were discussed by M. T. Jenkins. This was followed by considerable discussion of the desirability of drawing up a regional project on corn improvement in the Northeast along similar lines. It was agreed that the many advantages of a formal cooperative regional program on corn improvement in the Northeast warranted careful preparation of project on this work for submittal to the Northeastern Directors.

Acting on the basis of advice given to the Southern Corn Improvement Conference, it was agreed that the regional project should be divided into definite subprojects which would be assigned definite priority ratings. Committees were assigned to each subproject to prepare the project outlines. The subprojects selected and the committee assignments are listed below:

Corn Breeding Investigations - M. T. Jenkins, G. Haskell
Disease Resistance Investigations - J. L. Cartledge, H. L. Everett
Insect Resistance Investigations - B. F. Coon, R. S. Filmer, H. M. Yegian
Physiologic Investigations - B. L. Seem, J. C. Anderson, R. G. Wiggans
Nutritional Value - L. L. Huber, R. G. Rothgeb
Genetic and Cytologic Investigations - M. T. Jenkins, G. Haskell
Sweet Corn Quality Investigations - W. R. Singleton, M. T. Lewis, R. S. Snell, R. M. Bailey.

The meeting recessed at 3:00 p.m. for the committees to start work on their project outlines.

The meeting again was called to order at 4:50 p.m. The project outlines which had been prepared were read and discussed. Suggestions were made for modifying some of the outlines. The priority ratings of the different subprojects were determined by vote. It was agreed that the subproject on genetic and cytologic investigations should be combined with that on breeding investigations. The priority ratings assigned are shown below:

Priority 1 - Corn Breeding, Genetic and Cytologic Investigations
Priority 2 - Disease Resistance Investigations
Priority 3 - Sweet Corn Quality Investigations
Priority 4 - Corn Physiologic Investigations
Priority 5 - Insect Resistance Investigations
Priority 6 - Investigations of the Nutritional Value of Corn Strains

The distribution of the work among the various cooperating agencies so as to cover all essential phases, provide adequate replication but avoid unnecessary duplication was discussed in considerable detail. It was generally agreed that all agencies would need to devote as much effort as they could to the major subproject on corn breeding. The work on disease investigations could well receive special emphasis from

the Pennsylvania and West Virginia Experiment Stations and the Bureau of Plant Industry, Soils, and Agricultural Engineering. The work on sweet corn quality investigations could appropriately be emphasized in Connecticut, New Jersey, Maryland, Pennsylvania and Maine. The work on corn physiology could well be emphasized by the Connecticut and New Jersey Agricultural Experiment Stations and by the Bureau of Plant Industry, Soils and Agricultural Engineering, with emphasis on the soil phases of the problem by the Pennsylvania Agricultural Experiment Station. Insect resistance investigations could appropriately be emphasized in Maryland and Pennsylvania. Work on the relative nutritional value of different strains of corn might be emphasized by the New Jersey, New York, and Pennsylvania Agricultural Experiment Station.

Meeting adjourned at 6:15 p.m.

EVENING SESSION, TUESDAY, FEBRUARY 18

The evening meeting was called to order by Chairman Huber at 7:45 p.m.

Seed production for the three groups of uniform single crosses was discussed. J. C. Anderson and R. G. Rothgeb offered to produce seed of the U. S. 13 maturity group again this year. H. L. Everett and J. L. Cartledge offered to produce seed of the Ohio K24 maturity group. L. L. Huber and R. G. Wiggans offered to produce seed of the Wis. Hyb. 412 maturity group.

Cooperators who were to produce seed of single crosses for testing in 1947 were asked to report on the amounts of seed available. Arrangements were made for utilizing the seed available. These arrangements are summarized below.

Wis. Hyb. 275 Maturity

R. G. Wiggans reported that seed production for this test was a failure.

Wis. Hyb. 412 Maturity

H. M. Yegian reported sufficient seed for 5 tests. The parent lines involved were SD105, SD106, A96, A344, Pa Su 11A, W9, Wis. M13, W16, W8 and W28. Two tests were assigned to Massachusetts, two to Pennsylvania and one to New York.

Ohio M15 Maturity

L. L. Huber reported sufficient seed for 3 tests. The parent lines involved were Oh26, Ill. A, W23, Wis. R3, Pa 71, Pa 109, Pa Cl 104, Pa 31. One test each was assigned to Pennsylvania, Massachusetts and New York.

Iowa Hyb. 4059 Maturity (Connecticut)

H. L. Everett reported seed for only one test. This will be conducted in Connecticut. The parent lines involved were W22, Hy, W24, L289, I205, Ill. A, WF9, Oh56A, Oh51A, and R2.

Iowa Hyb. 4059 Maturity (Pennsylvania)

L. L. Huber reported seed for 3 tests of a special group of singles of this maturity made up in Pennsylvania. The parent lines were W24, Hy, I205, L289, Oh56A, Pa 55, Oh51A, R2, W22. Tests were assigned to Pennsylvania and Ohio with the possibility of one in New York.

U. S. Hybrid 13 Maturity

R. G. Rothgeb and J. C. Anderson reported sufficient seed for 8 tests. The parent lines were WF9, 38-11, Hy, L317, OhQ7A, Oh41, K230, B10 (Formerly SSS507-193), C102, and C103. Tests were assigned to Maryland, New Jersey, Pennsylvania, West Virginia, Delaware, and Connecticut. It was agreed that this test should be listed with the North Central tests and the three additional tests made available to that region if they desired them.

H. L. Everett discussed the uniform tests of double crosses of U. S. Hybrid 13 maturity conducted in 1946 and distributed mimeographed copies of the report on these tests. Connecticut, Maryland, New Jersey, Delaware, and Massachusetts cooperated in these experiments.

The proposed regional project again was discussed. Committees were asked to complete their project outlines and hand them to the Secretary before the meeting adjourned on Wednesday.

Meeting adjourned at 10:00 p.m.

MORNING SESSION, WEDNESDAY, FEBRUARY 19

The meeting was held in the Administration Building of the New Jersey Agricultural Experiment Station. It was called to order by Chairman Huber at 9:00 a.m.

The desirability of working out uniform methods of taking insect and disease data was discussed. It was pointed out that a committee of the North Central Conference had studied the problem of uniform disease records and has suggested uniform methods. Similarly a committee of the Southern Conference has made suggestions for taking uniform records on weevil and earworm damage. The Committee on Uniform Tests was assigned the problem of studying these reports and making suggestions for the use of the Northeastern Conference.

W. R. Singleton initiated a discussion of the advisability of testing sub-strains of established inbred lines. The importance of mutation in changing inbred lines was discussed.

W. R. Singleton questioned the desirability of varying the spacing of plants in tests of different hybrids. Plant populations of different hybrids desirable for optimum yields were discussed. J. C. Anderson showed data obtained in New Jersey with plant populations varying from 10,500 to 21,000 plants per acre and with different amounts of fertilizer. It was indicated that insect damage and lodging often is increased with higher plant populations.

J. C. Anderson raised a question as to the relative value of single-eared and prolific types of corn. The relation of the number of ears per plant to resistance to drought and to performance with high plant populations per acre was discussed.

Chairman Huber called for reports from the standing committees. These reports follow.

REPORT OF THE COMMITTEE ON STATISTICAL DESIGNS FOR THE UNIFORM COMPARISONS

This committee presented a detailed report a year ago. This report is published in the report of the 1946 New Brunswick Conference. They had no additional suggestions to offer at this time.

REPORT OF THE COMMITTEE ON THE UNIFORM DESIGNATION OF HYBRIDS

The Committee on the Uniform Designation of Hybrids prepared a report for the Northeastern Agricultural Experiment Station Directors giving in its entirety the proposed plan of hybrid designation. This plan was taken up by the directors at their meeting at Philadelphia on May 8-10, 1946 and approved without reservation.

The name "NorEast" has been suggested and approved by the committee as a regional designation for any hybrid released for production by the Northeast Corn Improvement Conference.

Respectfully submitted,

R. G. Wiggans
L. L. Huber
J. C. Anderson, Chairman

MOVED: That the report be accepted.

Seconded and passed.

The report of this committee prepared for the Northeastern Directors and approved by them is reproduced below.

Report to the Northeastern Directors
Association on Naming New Hybrids

The Northeastern Corn Improvement Conference was organized in February, 1945 at New Haven, Connecticut. The desirability of adopting a regional program of developing and testing corn hybrids was agreed on, and committees were appointed to take care of the various phases of such a program.

The committee on the naming of hybrids for the Northeastern Corn Improvement Conference suggests a few reasons for adopting a uniform system of designating or naming hybrids for this area. (1) Such a system will reduce confusion in hybrid nomenclature for farmers and breeders by recognizing adaptation areas rather than state boundaries. (2) The merits of hybrids will be recognized for their worth without prejudice of state pride and breeders will tend to be less biased in the recognition and selection of hybrids to be promoted by virtue of the fact that each breeder will have a share in the development of the hybrid. (3) Breeders will be concerned for all farmers of the Northeast rather than solely for those in their own state.

The committee on naming such hybrids as will be developed through the cooperation of the various members submits for adoption the system described below.

I. Regional Designation

- A. A trade name, Pilgrim, or some other agreeable to the group, will be the first unit of the name assigned to hybrids released for commercial production. (e.g. Pilgrim 450)
- B. Hybrids will receive regional designation only when released by the conference for commercial production. Prior to this they will be known by their state experimental number.
- C. The trade name and trade-mark will be copyrighted with the Federal authorities.

II. Relative Maturity

- A. A system of numbers will be used to designate relative maturity of the released hybrids. The range of numbers from shortest to longest will be 100-1000 with the lower numbers indicating earlier maturity. Maine might use the 100 and 200 series while Maryland might use those of 900 and 1000.

III. Standard for Relative Maturity

- A. Relative maturity will be determined in those areas in which the hybrid needs nearly all the growing season to mature grain. The figure for relative maturity will be the average number of days from seedling emergence to moisture content in the grain of 35%.

IV. Designation of Hybrids

- A. Hybrids will be given conference designations by consecutive numbers within their maturity group in order of release. The designation of released hybrids will be made through a clearing house which will be set up to avoid duplication of numbers. The Division of Cereal Crops has volunteered its service in this capacity. White corn hybrids will receive the regular number plus the letter W.

Respectfully submitted,

R. G. Wiggans

L. L. Huber

J. C. Anderson, Chairman

REPORT OF THE COMMITTEE TO FORMULATE A UNIFORM POLICY ON THE RELEASE AND DISTRIBUTION OF INBRED LINES

The committee makes the following recommendations relating to the release and distribution of new inbred lines by members of the Northeastern Corn Improvement Conference.

1. Continued free exchange of lines to other Experiment Stations with the understanding that lines shall not be released without the consent of the originating station.
2. Delayed release of new inbred lines under regulations conforming to those established by the North Central Corn Improvement Conference. These regulations provide for release of new lines following (a) adequate experimental trials in hybrids, (b) use of the line as a parent of an approved commercial hybrid, (c) field-scale seed production of the hybrid for a period of years, and (d) a supply of seed of the line at the time of release sufficiently adequate to insure an equitable distribution of it.
3. Each release of an inbred line to be accompanied by a formal announcement from the agency making the release.

If the general principle of delayed release is accepted by the Northeastern Corn Improvement Conference at this time, this committee will prepare a detailed statement of this policy for consideration at the next

meeting of this Conference and for presentation to the Northeastern Directors.

Respectfully submitted,

R. G. Rothgeb
M. T. Jenkins
J. C. Anderson
R. G. Wiggans, Chairman

The relative value of releasing or holding inbred lines was discussed and there was general agreement that lines should be released after hybrids containing them become established commercially. A question was raised as to the status of the older lines used as parents of hybrids developed in New York and New Jersey. These lines have never been released officially by these Experiment Stations and they may be reluctant to release them. It was the general feeling that the decision on releasing these old lines should be made by the originating station.

MOVED: That the report be approved.

Seconded and passed.

REPORT OF THE COMMITTEE ON SWEET CORN INVESTIGATIONS

Activities of the committee in 1946 was further substantiation of the difficulty encountered by all committee members in adding further activities to their present overloaded field programs. Activities were largely along the following lines:

1. Studies of improvement of quality in sweet corn under the supervision of W. Ralph Singleton.
2. Cooperative trials of sweet corn inbreds and varieties exchanged among the committee members under the supervision of Russell Bailey.
3. Preliminary discussions of possible projects under Flannagan-Hope Bill.

W. R. Singleton submits the following report of the studies of quality:

Quality testing in 1946 was on more or less of an observational or exploratory basis. Tests were made on either the raw ears in the field or on ears at the dinner table. In the latter case two or three samples are about all that can be adequately compared. When ears are tested in the field they are usually scored for quality either as Excellent, Very Good, Good, Fair or Poor.

Numerical designations can be assigned to each of the above listed categories so that the figures can be analyzed statistically.

It is suggested that for 1947 all cooperators should use the same system of designations so that the results will be comparable. We suggest the following designations:

Poor	-	1
Medium or fair	-	2
Good	-	3
Very good	-	4
Excellent	-	5

Tests should be made in the field and as many of the standard inbreds and hybrids scored for quality.

We realize the above outlined procedure is not objective in scope, and far from an adequate program for testing quality. It is the hope of the sweet corn breeders that funds will be made available from some of the various research funds, particularly the Flannagan-Hope Act, so that an adequate and thorough program of testing quality can be set up.

Such a program will call for help from the chemists, home-economists, and statisticians as well as sweet corn breeders.

W. Ralph Singleton

Mr. Bailey has submitted the following on the cooperative sweet corn trials:

An attempt was made last season by the Northeastern workers to conduct a coordinated performance trial of several sweet corn inbreds and hybrids. Exchange material was sent to each worker for observation with the objective that a summary of the pooled data might present worth while information on the range of adaptability of sweet corn inbreds and hybrids with respect to numerous characters including growth habits, disease resistance and quality.

Since no well-organized plan for taking uniform data had been developed by the group of workers, the observations were decidedly preliminary in nature. The data received this year were too fragmentary to permit drawing any conclusions on the range of adaptation of the inbreds and hybrids. However, this preliminary trial has served to promote exchange of breeding stocks among workers and has provided information to serve as a basis for defining objectives and for developing procedures for future coordinated work.

Russell Bailey

Preliminary discussions have explored the possibility of aid in the solution of the very many problems of the sweet corn breeder through basic research under the Flannagan-Hope Bill. There is general agreement on the desirability of basic work in whole problem of quality in sweet corn, particularly in the working out of practical objective means of analyzing for quality. There is some agreement, too, on the desirability of basic research to uncover a laboratory technique for detecting resistance to smut of sweet corn.

M. T. Lewis reports increasing interest in sweet corn varieties for home freezing in his state.

R. S. Snell, Chairman

MOVED: That the report be approved and the Committee commended for their work and continued.

Seconded and passed.

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Chairman Huber appointed J. L. Cartledge, B. F. Coon and R. S. Snell as a nominating committee. The meeting recessed for the committee to meet and bring in a report.

W. R. Singleton was nominated by the committee as Vice Chairman for the ensuing year. Dr. Singleton was elected unanimously.

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The possibility of interesting the pathologists, entomologists and other specialists in the annual meetings was discussed. It was agreed that their interest in the meeting would increase as they become more intimately associated in the cooperative program.

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Chairman Huber turned the meeting over to R. G. Rothgeb, the new Chairman for the ensuing year. Committee membership was reviewed and revised as needed. The revised committees are listed on page 14.

The advisability of alternating winter and summer meetings of the conference was discussed and it was

MOVED: That the Chairman be instructed to try and obtain the approval of the Directors for a summer meeting this year.

Seconded and passed.

R. G. Wiggans extended an invitation to the group to meet at Cornell and it was accepted unanimously.

Meeting adjourned at 11:40 a.m.

ROSTER OF ATTENDANCE

Connecticut, New Haven

Everett, Herbert L., Connecticut Agricultural Experiment Station
Singleton, W. Ralph, " " " "

Maine, Orono

Bailey, R. M., Maine Agricultural Experiment Station

Maryland

Jenkins, Merle T., Plant Industry Station, Beltsville
Rothgeb, R. G., Maryland Agricultural Experiment Station, College Park

Massachusetts, Amherst

Yegian, H. M., Massachusetts Agricultural Experiment Station

New Jersey, New Brunswick

Anderson, J. C., New Jersey Agricultural Experiment Station
Filmer, R. S., " " " " "
Schermerhorn, L. G., " " " " "
Snell, R. S., " " " " "

New York, Ithaca

Wiggans, R. G., Cornell University

Pennsylvania

Coon, B. F., Pennsylvania State College, Tobacco Experimental Laboratory,
Lancaster
Lewis, M. T., Pennsylvania Agricultural Experiment Station, State College
Seem, B. L., " " " " " "

West Virginia, Morgantown

Cartledge, J. L., West Virginia Agricultural Experiment Station

England, London

Haskell, Gordon, John Innes Horticultural Institution

OFFICERS AND COMMITTEE MEMBERSHIP, 1947

Referee - W. L. Slate

Executive Committee

Chairman - R. G. Rothgeb
Vice Chairman - W. R. Singleton
Member-at-large- L. L. Huber
Secretary - M. T. Jenkins

Committee on Uniform Tests of Field Corn

L. L. Huber, Chairman
R. G. Wiggans
H. L. Everett
B. F. Coon
C. M. Haenseler

Committee to Formulate a Uniform Policy on
the Release and Distribution of Inbred Lines

R. G. Wiggans, Chairman
J. C. Anderson
M. T. Jenkins
B. L. Seem

Committee on the Uniform Designation of Hybrids

J. C. Anderson, Chairman
L. L. Huber
R. G. Wiggans

Committee on Statistical Designs for the Uniform Comparisons

C. E. Phillips, Chairman
C. I. Bliss
H. M. Yegian

Committee on Sweet Corn Investigations

R. M. Bailey, Chairman
C. H. Dearborn
W. H. Lachman
M. T. Lewis
R. G. Rothgeb
W. R. Singleton
R. S. Snell

LIST OF NORTHEASTERN EXPERIMENT STATIONS

Connecticut	New Jersey
Delaware	New York
Maine	Pennsylvania
Massachusetts	Rhode Island
Maryland	Vermont
New Hampshire	West Virginia